

REMARKS

In response to the Office Action mailed February 26, 2010, Applicant has amended the application as above. No new matter is added by the amendments as discussed below. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the remarks set forth below.

Discussion of Claim Amendments

Claims 1-8 and 11-24 have been cancelled. Claims 9 and 10 have been amended. Claims 25-30 have been added. Upon the entry of the amendments, Claims 9-10 and 25-30 are pending in this application. The amendments to Claims 9 and 10, and new Claims 25-30 are supported, for example, by paragraphs [0157]-[0158] of the published application. As such, the claim amendments do not introduce any new matter. Entry of the amendments is respectfully requested.

Discussion of Rejection of Claim under 35 U.S.C. § 112, ¶ 2

The Examiner rejected Claims 9-12 as being indefinite. In reply, Applicant has cancelled Claims 11 and 12, and amended Claims 9 and 10 to resolve the issue addressed by the Examiner as reflected in the "AMENDMENTS TO THE CLAIMS" section. Withdrawal of the rejection is respectfully requested.

Discussion of Claim Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over JP 09-131400 in view of U.S. Patent No. 5,925,022 (Battiato). The Examiner has rejected Claims 11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over JP 09-131400 in view of Battiato further in view of U.S. Patent No. 6,644,119 (Sinha). Applicant respectfully submits that all pending claims are allowable over the cited references as discussed below.

Standard of Prima facie Obviousness

The Patent and Trademark Office has the burden under section 103 to establish a *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 U.S.P.Q. 785, 787-87

(Fed. Cir. 1984). In order to provide a *prima facie* showing of obviousness under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Discussion of Patentability of Pending Claims

Each of independent Claims 9 and 10 recites, among other things, a computer unit determining the type of the liquid from the analyzed resonance characteristic, detecting a foreign substance in the liquid from the analyzed resonance characteristic and controlling the operation of the piston driving mechanism based on the result of the determination and the detection. Applicant respectfully submits that none of the cited references teach or suggest the above-recited features of the claimed invention.

1. None of the Cited References Teach the Claimed Computer Unit

The Examiner recognized that both JP 09-131400 and Battiatto fail to teach the above-indicated features. *See* item No. 8 of the Office Action at page 5. Applicant respectfully submits that Sinha also fails to teach the above-indicated features.

First of all, Sinha does not teach “detecting a foreign substance in the liquid from the analyzed resonance characteristic.” Referring to column 3, lines 55-60, Sinha discloses an apparatus which determines the composition (e.g., water, crude oil, salt water, etc.) of a flowing fluid that includes more than one constituent liquids (sub-fluids). *See* also FIG. 4 of Sinha. However, the Sinha apparatus does not determine or detect a foreign substance in the fluid, since the cited reference merely shows the composition of the fluid, containing multiple sub-fluids, and does not recognize which sub-fluid is a foreign substance with respect to the entire liquid.

Further, the Sinha apparatus does not teach “controlling the operation of the piston driving mechanism based on the result of the determination and the detection.” In Sinha, merely the composition of the sampled fluid is determined and no controlling operation of a driving mechanism follows based on the determination. In contrast, the claimed computer unit controls the operation of the piston driving mechanism based on the detection. For example, in one embodiment of the claimed invention, the computer unit forcedly stops the piston driving mechanism when the foreign substrate is detected. *See, for example*, paragraph [0158] of the

published application. Therefore, Sinha does not teach the controlling associated feature of the claimed invention.

In view of the above, Applicant respectfully submits that the combination of the cited references does not teach or suggest all features of each independent claim. Meanwhile, there is no additional teaching to remedy the deficiencies of the cited references. Therefore, Applicant respectfully submits that no *prima facie* case of obviousness has been established with respect to independent Claims 9 and 10, and thus they are allowable over the cited references.

2. Sinha is Non-Analogous Art

Moreover, Applicant would like to point out to the Examiner "In order to rely on a reference as the basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992). In other words, the reference must be considered to be analogous to the field of invention. *See* M.P.E.P. § 2141.01(a).

The Applicant's invention relates to a chemical liquid injector for injecting a chemical liquid (e.g., a contrast media for medical examination, or physiological saline for treatment) into a patient. In contrast, Sinha is directed to a flow and composition monitoring system for characterizing oil (petroleum products) flow in pipes from oil fields. *See* column 11, lines 17-19.

Applicant respectfully submits that a chemical liquid injector, used for diagnosing or treating patients, is significantly different from the flow monitoring system of Sinha used in the petroleum industry. Accordingly, Applicant submits that a person of ordinary skill in the medical device technology would consider Sinha to be completely outside of the field of the Applicant's invention.

In addition, Sinha is not reasonably pertinent to the problem with which Applicant was concerned. The object of the Sinha apparatus is to noninvasively determine the flow rate or composition of a flowing fluid. *See* column 1, lines 50-54. In contrast, the problem addressed by one embodiment of the invention is concerned with preventing an unexpected injury to a patient by determining a foreign substance present in the liquid of the chemical injector and forcibly

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stopping the piston driving mechanism. *See, for example*, paragraph [0058] of the published application.

A skilled person in the medical device technology trying to a patient safety problem in chemical liquid injectors would not turn to technology for determining the composition of petroleum liquid for solutions to this problem. Accordingly, Applicant respectfully submits that Sinha is non-analogous art and is not a proper basis for the rejections of Claims 9-10.

Discussion of Patentability of New Claims

Claims 26-30 depend from their base Claim 9 or 10, and further define additional technical features of the present invention. In view of the patentability of their base claims, and in further view of the additional technical features, Applicant respectfully submits that the new claims are patentable over the cited references.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

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CONCLUSION

In view of Applicant's foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,

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AMEND

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